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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/705,558	11/02/2000	William D. McConnell	067647.0112	8705

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EXAMINER	
JUNTIMA, NITTAYA	

ART UNIT	PAPER NUMBER
2663	4

DATE MAILED: 07/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/705,558	MCCONNELL ET AL.	
	Examiner	Art Unit	
	Nittaya Juntima	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 November 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 November 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 3, 10, are objected to because of the following informalities:

   - in claims 3, 10, ll 2, "0.125" should be changed to "125;"

   Appropriate correction is required.

Claim rejections – 35 USC *§ 103 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Per claims 14, 18, and 23, the limitation "a number of samples greater than one and equal to the second data transfer rate divided by the first data transfer rate" is vague and indefinite. It cannot be determined from the claimed language as how a number of samples which is equal to the second data transfer rate divided by the first data transfer rate as recited in the claims can be greater than one since the second data transfer rate, i.e. 32 kbps of the receiver 40 in Fig. 3 is smaller than the first data transfer rate, i.e. 64 kbps. Therefore, the office is treating this limitation as "a number of samples greater than one and equal to the first data transfer rate divided by the second data transfer rate."

Claim 19, the limitation "the central processing unit" in line 2 of the claim lacks antecedent basis. The office is treating this limitation as "the procesor"

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura et al. (USPN 5,896,374).

Per **claim 1**, as shown in Figs. 11A and 13C, Okumura et al. teach

- receiving ***data*** (a data sequence) at ***a first data transfer rate*** (a low transmission rate received at input of a repeater 121 residing in a transmitter shown in Fig. 11A) (col. 18, ll 1-13),

- allocating the data into ***a plurality of sequential frames*** (sequential frames not defined, read on the first frame having D0,D1 bits and the second frame having D2,D3 as shown in Fig. 13B) of ***a predetermined length of time*** (the first and second frames must occupy a predetermined length of time, col. 18, ll 1-2),

- arranging the frames into a set of data (a predetermined number of bits – a set of

data consists of the first frame containing D0, D1 bits and the second frame containing D2, D3 bits, col. 19, ll 33-37), and

- transmitting the set of data to ***a communication bus*** (bus connecting repeater 121 and interleaver 106 as shown in Fig. 11A), wherein the set of data is repetitively transmitting ***a number of times*** (integer K) greater than one and equal to ***the second data transfer rate*** (the maximum bit of the frame shown in Fig. 13C) divided by the first data transfer rate (as shown in Fig. 13C, D0-D3 bits are transmitted as a set at the output of repeater 121 in Fig. 11A, col. 18, ll 1-14 and col. 19, ll 33-37).

Okumura et al. fail to explicitly teach buffering the data, arranging the frames into a byte of data, and transmitting the bye of data, wherein the byte is repetitively transmitted a number of times as recited in the claim.

However, it is well known in the art that buffering is used to provide temporarily storage and retrieval for data and a byte consists of 2 nibbles each of which contains 4 bits is a standard unit of data transmission

Therefore, it would have been obvious to one skilled in the art to include buffering the data and replace the set of data (a predetermined number of bits, col. 19, ll 36) with a byte of data such that buffering the data and arranging the frames into a byte of data, and transmitting the bye of data, wherein the byte is repetitively transmitted a number of times would be included in the teaching of Okumura et al. as recited in the claim. The suggestion/motivation to do so would have been to enable the transmitter shown in Fig. 11A to temporarily store, retrieve, arrange, and repeat data in a form of a standard byte for transmission.

Per **claims 2**, **9**, and **12**, Okumura et al. fail to teach that the first data transfer rate comprises approximately sixteen or thirty-two kilobits per second, and the second data transfer rate comprises sixty-four kilobits per second.

However, it would have been obvious to one skilled in the art to modify the teaching of Okumura et al. such that the first data transfer rate comprises approximately sixteen or thirty-two kilobits per second, and the second data transfer rate comprises sixty-four kilobits per second which are widely used data rates as long as it does not produce any unexpected result and such modification involves only routine skill in art.

Per **claims 3** and **10**, Okumura et al. fail to teach that the predetermined length of time comprises approximately 125 microseconds. However, it would have been obvious to modify the teaching of Okumura et al. such that the predetermined length of time comprises approximately 125 microseconds as long as it does not produce any unexpected result and such modification involves only routine skill in the art.

Per **claims 4** and **11**, Okumura et al. fail to teach that the byte of data comprises an eight-bit byte of data. It would have been obvious to include the byte of data comprising an eight-bit byte of data into the teaching of Okumura et al. because it is well known in the art that a byte of data comprises eight bits of data.

Per **claims 5, 13,** and **17**, Okumura et al. teach that ***the number of times comprises two times*** (K=2, Fig. 13C and col. 19, ll 33-37).

Per **claims 6** and **8**, Okumura et al. teach

- (for claim 8 only) a signal processor (a receiver shown in Fig. 25, col. 19, ll 37-42, see also Fig. 11B),

- receiving the set of data (the set of data consists of D0, D1, D2, and D3 bits must be received at the input of the receiver in Fig. 11B, col. 19, ll 33-37) at ***a processor*** (receiver in Fig. 25 which processes the received data, Figs. 11B and 25, col. 19, ll 37-42 and col. 18, ll 46-55),

- outputting arranging the set of data (D0-D3) into ***a plurality of samples*** (frames D0-D3, D0-D3, D4-D7, D4-D7, ..Dn) (the set of data D0-D3 at the output of the deinterleaver 153 in Fig. 11B must be arranged together with other data bits in a form as shown in Fig. 13C having frames D0-D3, D0-D3, D4-D7, D4-D7, ..Dn, Fig. 25, col. 18, ll 46-48 and col. 19, ll 37-42), and

- retrieving **one** (one frame containing D0-D3 bits) of ***a subset*** (frame D0-D3 and frame D0-D3 as shown in Fig. 13C) of the plurality of samples, wherein the subset of the plurality of samples includes ***a number of samples*** (two) equal to the second data transfer rate divided by the first data transfer rate (Figs. 11B and 25, col. 18, ll 46-55 and col. 19, ll 33-42, see also col. 18, ll 1-14).

Okumura et al. fail to teach receiving the bytes of data and buffering the bytes of data into a plurality of samples.

However, as explained in claim 1 that it is well known to use a byte in data transmission and buffering is used to temporarily and systematically provide storage and retrieval for data.

It would have been obvious to one skilled in the art to modify the teaching of Okumura et al. by including receiving the bytes of data and buffering the bytes of data into a plurality of samples. The motivation/suggestion to do so would have been to receive the data in a byte

which is a standard unit of data, and to systematically and temporarily store and retrieve the byte for data arrangement through buffering.

Claim 7 is a system claim corresponding to method claim 1, and is therefore, rejected under the same reason set forth in the rejection of claim 1 with the addition of a receiver (an input port at repeater 121 in Fig. 11A, see also Fig. 13B), a processor (repeater 121 in Fig. 11A, see also Figs. 13B and 13C), and a transmitter (an output port of repeater 121 in Fig. 11A, see also Fig. 13C).

Per **claim 14**, Okumura et al. teach

- receiving a plurality of sets of data (the sets of data: D0-D3, D0-D3 shown in Fig. 13C are received at the input of the receiver in Figs. 11B and 25) at ***a first data transfer rate*** (the maximum bit of the frame) (col. 18, ll 1-14, col. 18, ll 46-55, and col. 19, ll 37-42),

- outputting arranging the sets of data (D0-D3, D0-D3 in Fig. 13C) into ***a plurality of samples*** (frames D0-D3, D0-D3, D4-D7, D4-D7, ..Dn) (the sets of data D0-D3 and D0-D3 at the output of the deinterleaver 153 in Fig. 11B must be arranged and outputted together with other data bits D4-D7, D4-D7, ...Dn into a plurality of frames D0-D3, D0-D3, D4-D7, D4-D7, ..Dn as shown in Fig. 13C, Fig. 25, col. 18, ll 46-48 and col. 19, ll 37-42), and

- subsampling **one** (one frame containing D0-D3 bits) of ***a subset*** (frame D0-D3 and frame D0-D3 as shown in Fig. 13C) of the plurality of samples, wherein the subset of the plurality of samples includes ***a number of samples*** (two) equal to the second data transfer rate divided by the first data transfer rate (Figs. 11B and 25, col. 18, ll 46-55 and col. 19, ll 33-42, see also col. 18, ll 1-14).

Okumura et al. fail to teach receiving a plurality of bytes of data and buffering the bytes of data into a plurality of samples.

However, as explained in claim 1 that it is well known to use a byte in data transmission and buffering is used to provide temporarily storage and retrieval for data.

It would have been obvious to one skilled in the art to modify the teaching of Okumura et al. by including receiving the bytes of data and buffering the bytes of data into a plurality of samples. The motivation/suggestion to do so would have been to receive the data in bytes which are standard unit of data, and to temporarily and systematically store and retrieve the bytes for data arrangement through buffering.

Per **claims 15-16** and **20-21**, Okumura et al. fail to teach that the first data transfer rate comprises approximately sixty-four kilobits per second, and the second data transfer rate comprises sixteen or thirty-two kilobits per second.

However, it would have been obvious to one skilled in the art to modify the teaching of Okumura et al. such that the first data transfer rate comprises approximately sixteen or thirty-two kilobits per second, and the second data transfer rate comprises sixty-four kilobits per second which are widely used data rates as long as it does not produce any unexpected result and such modification involves only routine skill in art.

Claim 18 is a system claim corresponding to method claim 18, and is therefore, rejected under the same reason set forth in the rejection of claim 18 with the addition of a receiver (an input port of a receiver as shown in Figs. 25 and 11B) and **a processor** (a receiver in Figs. 11B and 25).

Per **claim 19**, Okumura et al. fail to teach a digital signal processor. However, it is well known in the art that a digital signal processor is programmable and is used to control functions of receiver components in signal processing. Therefore, it would have been obvious to one skilled in the art to modify the teaching of Okumura et al to include a digital signal processor as recited in the claim. The suggestion/motivation to do so would have been to control functions of the receiver components through a programmable processor as shown in Figs 11B and 25.

Claims 22 and **23** are system for processing transactions claims corresponding to methods claims 1 and 14, respectively, and are rejected under the same reason set forth in claims 1 and 14, respectively, with an exception that Okumura et al. fail to teach a computer-readable medium and a computer program encoded on the computer-readable medium. However, it would have been obvious to one skilled in the art to incorporate a computer-readable medium and a computer program encoded on the computer-readable medium into the teaching of Okumura et al. The suggestion/motivation to do so would have been to provide a systematic execution of the recited steps on a portable computer instruction storage.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 703-306-4821. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 703-308-5340. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nittaya Juntima
June 25, 2004

ANDY LEE
PATENT EXAMINER